

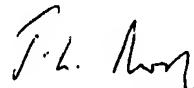
DECLARATION

I, James G. Morgan, a British subject of Markgrafenstr. 8, 81827 Munich, West Germany, do hereby declare that I am conversant with the English and German languages and that I am a competent translator thereof.

I verify that the attached English translation is a true and correct translation of the Annex to the International Preliminary Examination Report of January 26th 2005 in the matter of PCT application,
PCT/EP2003/007436.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signed:



James G. Morgan

This 15th day of March 2005

Translation of the Annex to the International Preliminary ExaminationReport for PCT/EP03/07436

Re.: Point 5, Justified finding with respect to novelty, inventive step and commercial utility; documents and explanations in support of the finding

1. Reference is made to the following documents:

D1: DE 101 14 200 A (Profil-Verbindungstechnik GmbH), September 26, 2002 (2002-09-26)

2. The document D1 is regarded as the closest piece of prior art with respect to the subjects of claim 1 and 13. It discloses a hollow fastener element for the electrically conductive attachment of an electrical terminal device and a component assembly consisting of a sheet metal part and a fastener element attached to this via a rivet connection.
 - 2.1 The subject of claims 1 and 13 is distinguished from the fastener element of the component assembly in that the ring-like contact surface is conical and features providing security against rotation are formed at the conical contact surface.
 - 2.2 The subject of claims 1 and 13 is thus novel (Art. 33(2) PCT).
 - 2.3 The object to be satisfied by the present invention can thus be seen in improving the electrically conductive attachment of an electrical terminal device by a fastener element.

- 2.4 The solution proposed in the claims 1 and 13 of the present application for this object relates to an inventive step (Art. 33 PCT) because no other document discloses or mentions that the fastener element can be provided with a conical contact surface.
3. The claims 2 to 12 and 14 to 17 are dependent on claims 1 or 13 and thus likewise satisfy the requirements of the PCT with respect to novelty and inventive step.

Claims

1. ~~Method for producing an electrically conductive connection between an electrical terminal device (104) having a cut out, such as a cable shoe, and a sheet metal part (50), in which a hollow fastener element (10) is rotationally fixedly riveted to the sheet metal part and an electrically conductive connection is hereby produced between the fastener element and the sheet metal part and the so manufactured component assembly is subsequently provided with an electrically non-conductive or poorly conductive protective coating (120) such as for example a paint layer or a powder coating, characterized in that a mount (80) for the electrical terminal device (104) is formed in the region of the end face (80) of the fastener element to which the electrical terminal device (104) is attached and prevents a rotation of the terminal device relative to the fastener element (10) and the sheet metal part (50) and in that a thread forming or thread cutting screw (106) is screwed through the cut out (110) of the electrical terminal device and into the hollow fastener element (10) and there forms or cuts a thread by the screw in movement.~~
2. ~~Method in accordance with claim 1, characterized in that the fastener element (10) is attached to the sheet metal part (50) so that it is secure against button out.~~
3. ~~Method in accordance with claim 1 or claim 2, characterized in that~~

— the fastener element (10) is self-piercingly attached to the sheet metal part.

4. Method in accordance with claim 1 or claim 2,

— characterized in that

— the mount (82) is formed by at least one projection (40, 41) which projects beyond the end face of the fastener element.

5. Method in accordance with claim 3,

— characterized in that

— the fastener element is executed with two projections (40) which are formed by two lugs having a spacing from one another and which are arranged to the side of the bore of the hollow fastener element (10).

6. Method in accordance with claim 3,

— characterized in that

— the projection (41) is arranged around the bore (38) of the hollow fastener element (10) and is made polygonal in its external outline.

7. Method in accordance with claim 5,

— characterized in that

— the projection (41) is made triangular, square, hexagonal or octagonal in its external outline.

8. Method in accordance with claim 1 or claim 2,

— characterized in that

— the mount (80) is formed by a recess in the end face of the fastener element which merges into one or more radially extending grooves.

91. Hollow fastener element for the electrically conductive attachment of an electrical terminal device (104) such as a cable shoe, to a sheet metal part, wherein
~~characterized in that~~
the hollow fastener element (10) has a head part (14) and a rivet section (16), with the rivet section (16) merging via a ring-like contact surface (12) for the sheet metal part into the head part (14) and with features (30) providing security against rotation being provided at the contact surface and/or at the rivet section (16), wherein the hollow fastener element has a bore, for example a smooth cylindrical bore (38), at a point at which a thread is to be formed by screwing-in a thread cutting or thread forming screw (106) and wherein in that a mount (80) for the rotationally secure attachment of the electrical connection device (104) to the fastener element is provided at the end face of head part (14) remote from the rivet section (16), characterised in that the ring-like contact surface (12) is conical, with the features (30) providing security against rotation being formed at the conical contact surface(12).

210. Fastener element in accordance with claim 19,
characterized in that
the mount (80) is formed by at least one projection (40; 41) projecting beyond the end face of the fastener element.

311. Fastener element in accordance with claim 29,
characterized in that
the fastener element (10) is executed with two projections which are formed by two lugs having a spacing from one another which are arranged to the side of the bore (38) of the hollow fastener element.

412. Fastener element in accordance with claim 210,
characterized in that
the projection (41) is arranged around the bore of the hollow fastener
element and is made polygonal in its external outline.

513. Fastener element in accordance with claim 412,
characterized in that
the projection (41) is made triangular, square, hexagonal or octagonal
in its external outline.

14. Fastener element in accordance with claim 9,
~~characterized in that~~
~~the mount (80) is formed by a recess in the end face of a fastener
element which merges into one or more radially extending grooves.~~

615. Fastener element in accordance with one of the preceding claims 19
to 514,
characterized in that
a tubular guide section (18) is arranged concentric to the tubular
rivet section (16) and radially inside the latter, with a ring gap (20)
being provided between the guide section (18) and the rivet section
(16) and with the guide section projecting beyond the free end of the
rivet section.

716. Fastener element in accordance with claim 615,
characterized in that
the free end of the wall of the ring-like rivet section (16) is rounded
when viewed in an axial section plane both at the radially outer side
(24) and also at the radially inner side (26) and has for example a
semi-circular shape or a shape resembling an arrow-tip.

817. Fastener element in accordance with claim 615 or claim 716, characterized in that the ring gap (20) has a radial dimension in the range between 0 mm and approximately 3 mm.

918. Fastener element in accordance with one of the preceding claims 615 to 817, characterized in that the ring gap (20) finishes at an axial spacing (a) before the ring-like contact surface (12) at the rivet section side of the ring-like contact surface (12).

1019. Fastener element in accordance with one of the preceding claims 615 to 918, characterized in that the guide section (18) is formed as a piercing section and has a ring-like cutting edge (28) at its end remote from the contact surface (12).

20. Fastener element in accordance with one of the preceding claims 15 to 19, characterized in that features (30) providing security against rotation are disposed in the region of the ring-like contact surface (12) and/or at the rivet section (16) and/or at the jacket surface of the head part (14) adjacent to the contact surface (12).

21. Fastener element in accordance with claim 20, characterized in that

— features (30) providing security against rotation are formed by noses or by groove-like recesses.

22. Fastener element in accordance with claim 21, in which noses (30) providing security against rotation are provided and are present in raised form at the contact surface (12) and at the rivet section (16) in the region of the transition from the contact surface to the rivet section.

23. Fastener element in accordance with claim 22,
— characterized in that
— the noses (30) providing security against rotation extend in the radial direction at the contact surface (12) and in the axial direction at the rivet section (16).

24. Fastener element in accordance with one of the claims 9 to 23,
— characterized in that
— the noses providing security against rotation have a generally rounded shape or are provided with side flanks (32) which lie in planes extending in the longitudinal direction of the element.

1125. Fastener element in accordance with one of the claims 615 to 1024,
characterized in that
the hollow fastener element has a hollow cylindrical region (38) where the thread forming or cutting screw forms or cuts a thread cylinder which is provided either in the head part (14) or in the guide section (18) or at least partly in the head part (14) and in the guide section (18).

1226. Fastener element in accordance with claim 1125,

characterized in that

the thread cylinder ends in the axial direction approximately at the position where the ring-like gap (20) ends in front of the ring-like contact surface (18).

27. Fastener element in accordance with claim 11,

characterized in that

the projection is formed by at least one lug and in that the or each lug (40) has a flank, which, on the attachment of a cable shoe, prevents rotation of the latter about the longitudinal axis (11) of the functional element (10).

28. Fastener element in accordance with claim 11 or 27,

characterized in that

at the position of the or each lug (40) the jacket surface of the head part (14) has a corresponding recess (42) which, on the attachment of the functional element to a sheet metal part (50), serves as a security against rotation.

29. Fastener element in accordance with one of the preceding claims 9 to 14,

characterized in that

the rivet section is a piercing and riveting section, with the head part and the piercing and riveting section being formed for example as in the RSF element of the company Profil Verbindungstechnik GmbH & Co. KG or as described in the German patent specification 3446978 or 3447006.

1330. Component assembly consisting of a sheet metal part (50) and a hollow fastener element (10) attached to it via a rivet connection,

wherein the fastener element is rotationally fixedly secured to the sheet metal part by means of features (30) providing security against rotation, and the fastener element and the sheet metal part are jointly coated with an electrically non-conductive or poorly conductive protective coating (120), and an electrically conductive path is provided between the fastener element and the sheet metal part in the region of the rivet connection and/or the features providing security against rotation,

~~characterized in that~~

the sheet metal part (50) contacts the contact surface (12),—the
fastener element has a smooth cylinder bore (38) for receiving a
thread forming or cutting screw and in that the fastener element has
a mount (80) at the end face remote from the rivet connection for the
rotationally secure attachment of the electrical terminal device (104),
characterised in that the ring-like contact surface (12) is conical, with
the features (30) providing security against rotation being formed at
the conical contact surface.

1431. Component assembly in accordance with claim 1330,
characterized in that
a thread cutting or forming screw (106) is screwed into the hollow
fastener element (10) and holds the electrical connection device at the
fastener element (10) in the manner secure against rotation.

1532. Component assembly in accordance with claim 1330 or 1431,
characterized in that
the mount (80) is formed by at least one projection (40; 41) projecting
beyond the end face of the fastener element.

33. Component assembly in accordance with claim 32,

— characterized in that
— the fastener element is executed with two projections (40) which are formed by two lugs having a spacing from one another which are disposed to the side of the hole (38) of the hollow fastener element.

1634. Component assembly in accordance with claim 1532,
characterized in that
the projection (41) is arranged around the bore (38) of the hollow fastener element (10) and is made polygonal in its external outline.

1735. Fastener element in accordance with claim 1634,
characterized in that
the projection (41) is made triangular, square, hexagonal or octagonal in cross-section.

36. Fastener element in accordance with claim 31 or 32,
— characterized in that
— the mount (80) is formed by a recess in the end face of the fastener element which merges into one or more radially extending grooves.